Summary of ADWR's Water-Level Data Survey Results

Hydrology Division
Arizona Department of Water Resources
February 8, 2012

Purpose

- Evaluate the feasibility of collecting supplemental water-level data to assist with ADWR's Groundwater-Level Monitoring Program

Objectives

- Learn about our public water-level data users
- Gain insight into public water-level data needs, uses and data collection activities
- Foster cooperation and improve efficiency

About the Survey

- Accessible via ADWR's webpage
- Available from Nov. through Dec. 2011
- Contained 5 sections:
  - Introduction
  - GWSI Data
  - Required Data Collection/Reporting
  - Voluntary Data Collection/Reporting
  - General Feedback
- Presented 39 questions
- 73 Respondents

Part 1: Introduction

Who are our public water-level data users?

Participation From Varying Sectors

Industry Type	Result	%
Utilities	**35**	**49%**
Water Resources	**15**	**21%**
Environmental Resources	6	8%
Engineering/Construction/Drilling	5	7%
Other	5	7%
Education	2	3%
Fish & Wildlife	2	3%
Mining	1	1%
Natural Resources	1	1%
Total	**72**	**100%**

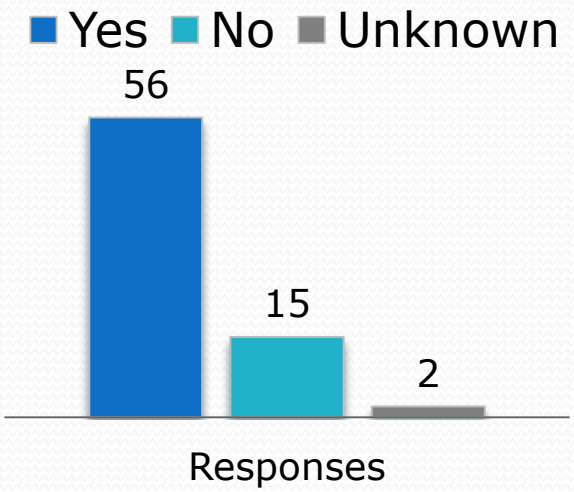
Organization Type	Result	%
Non-Tribal Government	**38**	**53%**
Commercial/Private Business	**17**	**24%**
Other	5	7%
Large Community Water System	3	4%
Large Water Provider	2	3%
Educational Institution	2	3%
Non-Profit Organization	2	3%
Irrigation District	2	3%
Tribal Government	1	1%
Total	**72**	**100%**

Participant's Role	Result	%
Hydrologist, Geologist or Related	**29**	**40%**
Water Manager, Planner or Resource Specialist	**25**	**35%**
Other	8	11%
Operator	5	7%
Academic Researcher	3	4%
Elected/Appointed Official	1	1%
Real Estate Professional	1	1%
Total	**72**	**100%**

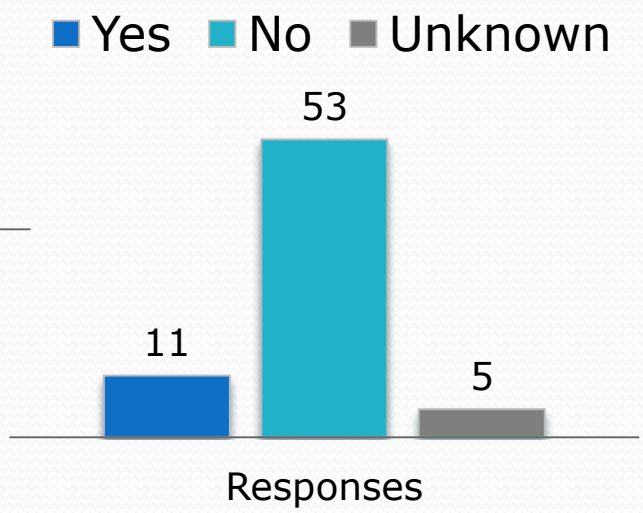
Note: Some survey categories may not be presented due to a lack of response

Water-Level Data Collection

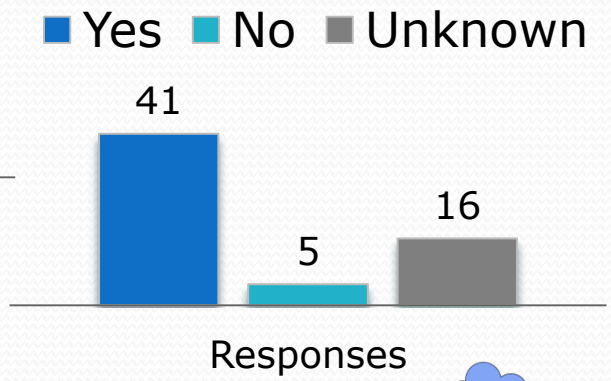
77% of respondents collect water-level data



Of the 56 Yes responses, only 20% submit the data electronically to ADWR



Of the 53 collecting, but not submitting data electronically, 71% would be willing to do so



Part 2: GWSI Data

Gain insight into public water-level data needs, uses and data collection activities

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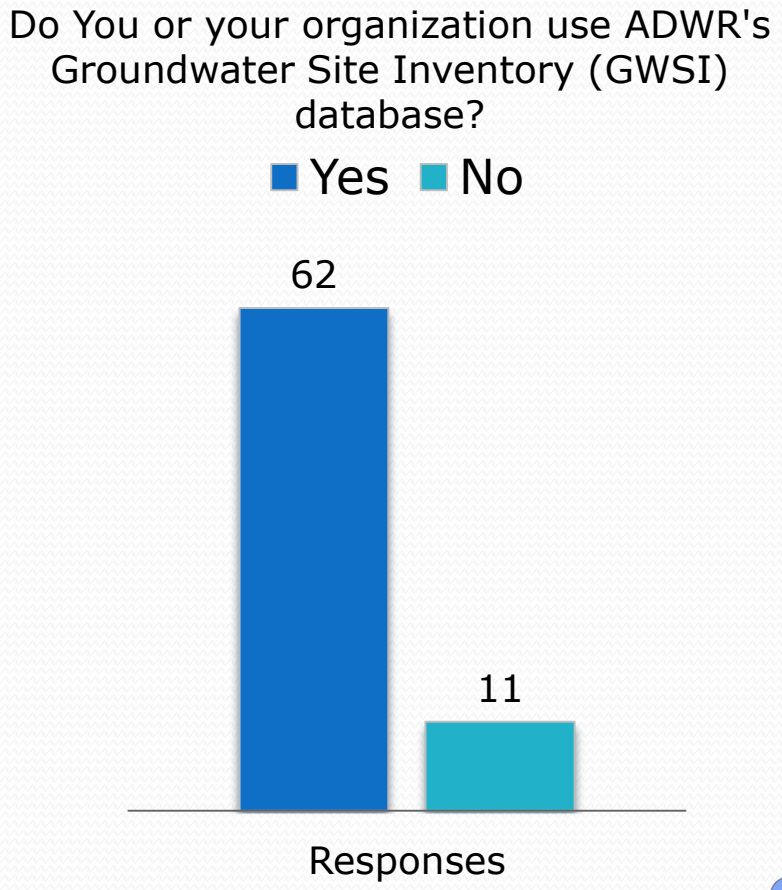
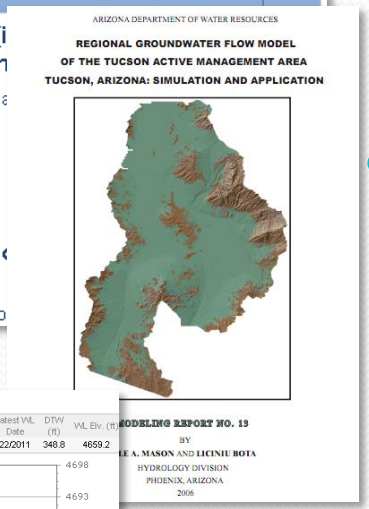
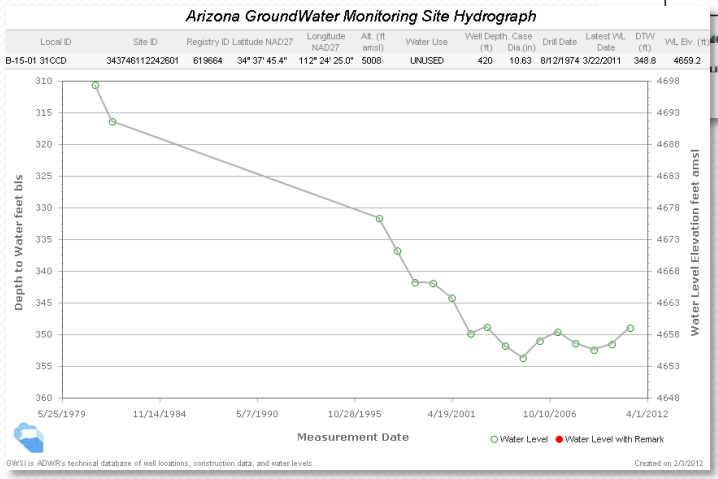
Groundwater Site Inventory (GWSI) Data

85% of the survey respondents use ADWR's GWSI database to access groundwater-level data



GWSI Data: Access, Use, Frequency





- Data mostly accessed via:
  - ADWR's web-based services
- Most common data uses:
  - hydrologic studies
  - depth-to-water
  - Water-level trends
  - Water-level elevation/groundwater-flow direction
- Most commonly viewed:
  - Monthly

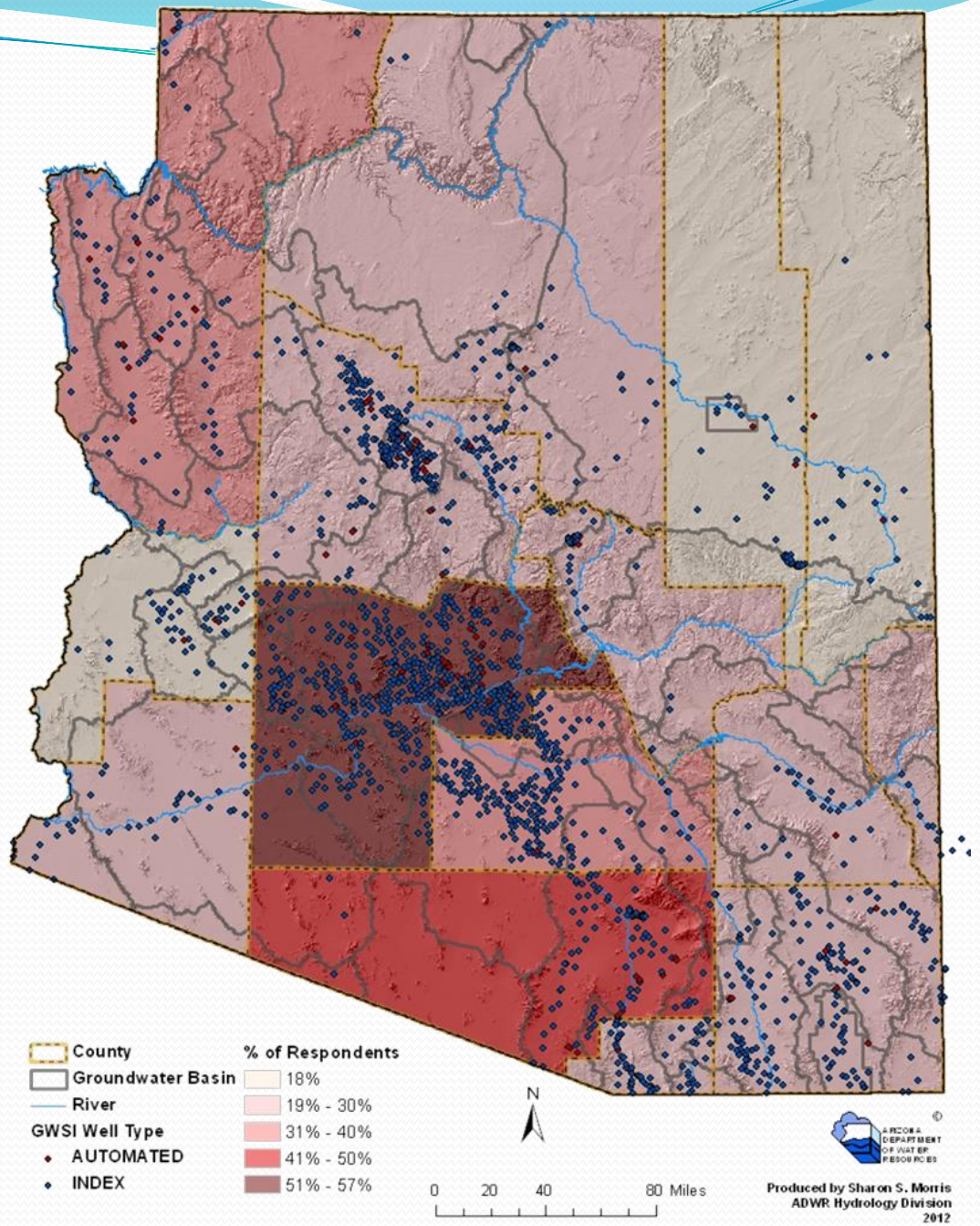
GWSI Data: Access, Use, Frequency

- Period of record most often used:
  - All available measurements on record
  - Annual measurements
- Most important types of data:
  - Water-level measurements
  - Well location
  - Well construction
  - Well log
  - Discharge measurements
  - Drawdown test analyses

Data Collection Priorities by County

(as identified by 28 respondents)

County	Count
MARICOPA	**16**
PIMA	13
MOHAVE	9
PINAL	9
SANTA CRUZ	8
COCHISE	7
COCONINO	6
GILA	6
GRAHAM	6
GREENLEE	6
YAVAPAI	6
YUMA	6
APACHE	5
LA PAZ	5
NAVAJO	5



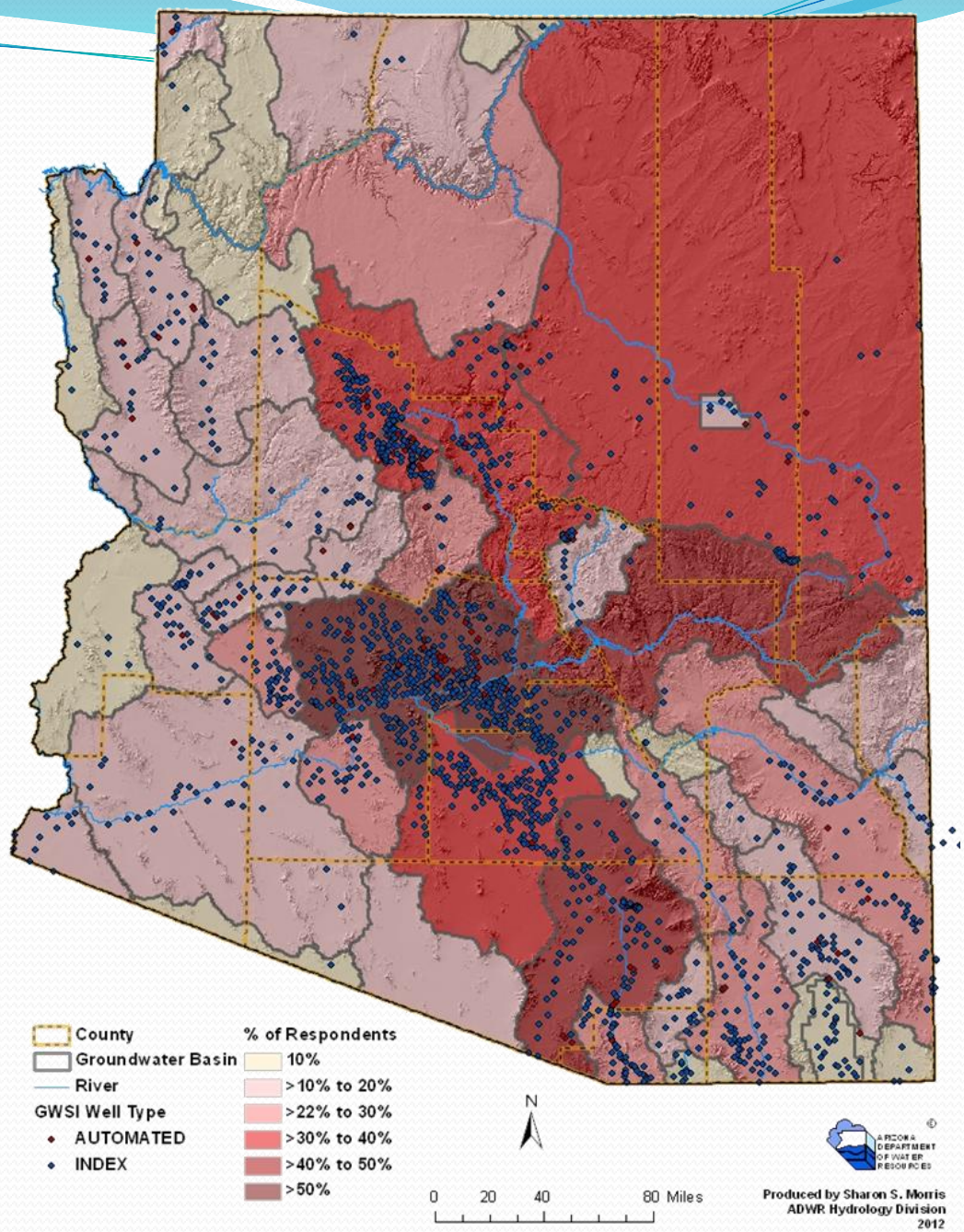
Data Collection Priorities by Groundwater Basin

(as identified by 41 respondents)

Basin	Count
PHOENIX AMA	**22**
SALT RIVER*	18
TUCSON AMA	18
LITTLE COLORADO	13
PINAL AMA	13
PRESCOTT AMA	13
VERDE RIVER	13
COCONINO PLATEAU	12
UPPER SAN PEDRO	12
AGUA FRIA	10
HARQUAHALA INA	10
LOWER SAN PEDRO	10
SAFFORD	10
SANTA CRUZ AMA	10
GILA BEND	9
SAN SIMON WASH	8
TONTO CREEK	8
UPPER HASSAYAMPA	8
YUMA	8
BILL WILLIAMS	7
CIENEGA CREEK	7
LOWER GILA	7
MCMULLEN VALLEY	7
BIG SANDY	6
BUTLER VALLEY	6
DETRITAL VALLEY	6
JOSEPH CITY INA	6

Basin	Count
LAKE HAVASU	6
RANEGRAS PLAIN	6
SACRAMENTO	6
TIGER WASH	6
WILLCOX	6
ARAVAIPA CANYON	5
BONITA CREEK	5
DUNCAN VALLEY	5
HUALAPAI VALLEY	5
KANAB PLATEAU	5
MORENCI	5
VIRGIN RIVER	5
DONNELLY WASH	4
DOUGLAS	4
DOUGLAS INA	4
DRIPPING SPRINGS	4
GRAND WASH	4
LAKE MOHAVE	4
MEADVIEW	4
PARIA	4
PARKER	4
PEACH SPRINGS	4
SAN BERNARDINO	4
SAN RAFAEL	4
SHIVWITS PLATEAU	4
WESTERN MEXICAN	4

**Priority level needs verification*

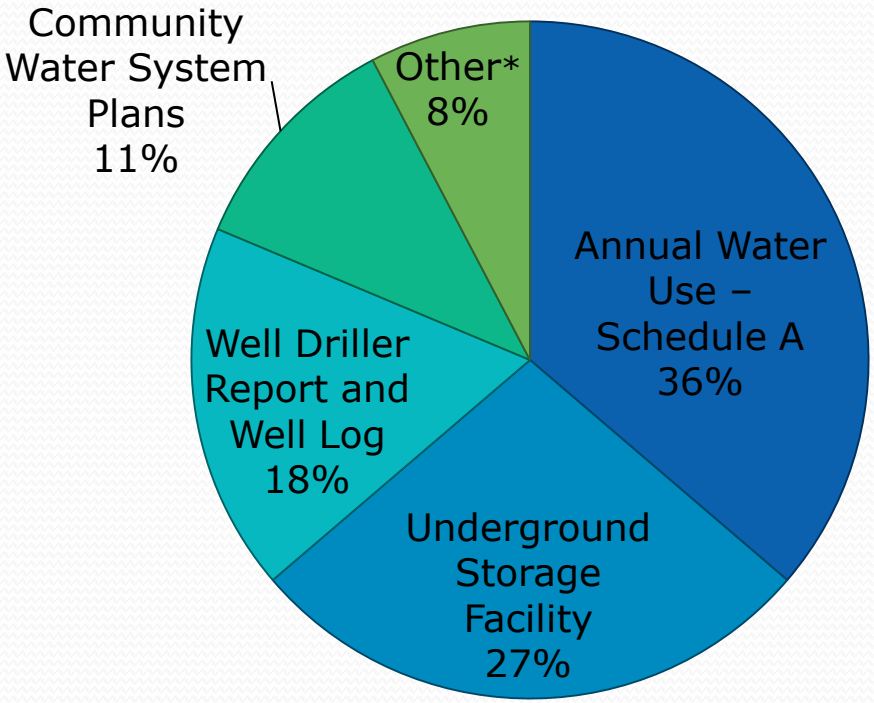


Part 3 & 4: Data Collection and Reporting

Foster cooperation and improve efficiency

Required Water-Level Data Reporting

ADWR reports and permits requiring the submittal of water-level data



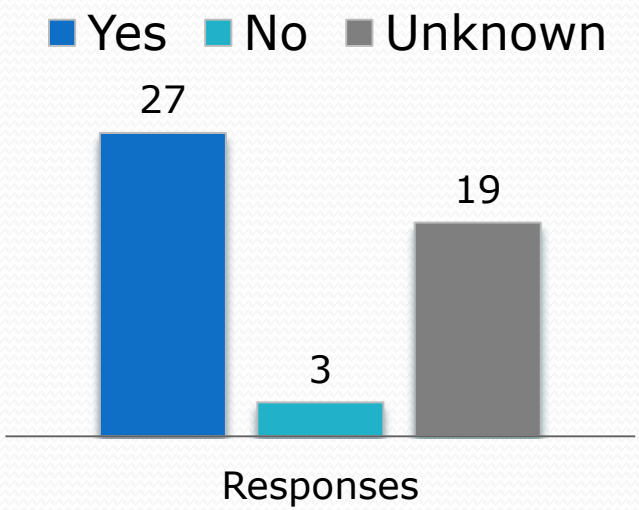
*Other: NOIs, AAWS Reports, Well Impact Analyses, Recovery Well Permits, Hydrologic Monitoring Reports

Required Water-Level Data Reporting

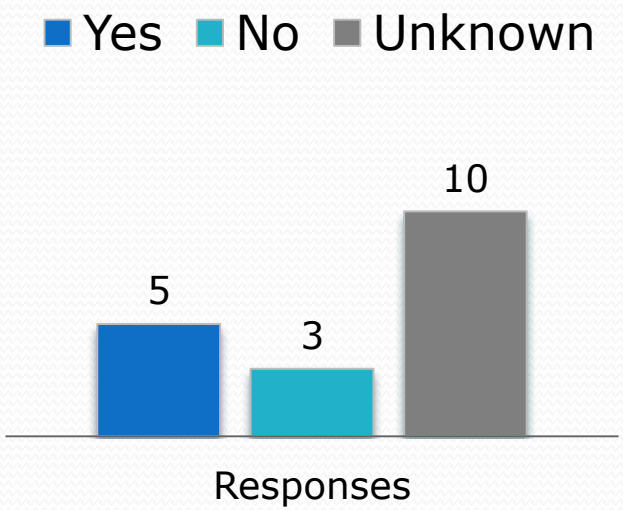
- **37% of respondents are required to report water-level data to other government agencies**
- **100% of respondents support the use new methods, forms and data formats that will enable the online submittal of required water-level data**

Voluntary Water-Level Data Collection and Data Sharing

55% of respondents who voluntarily collect water-level data are willing to share this data with the public



28 % of respondents operating SCADA systems are willing to share automated real-time water-level data

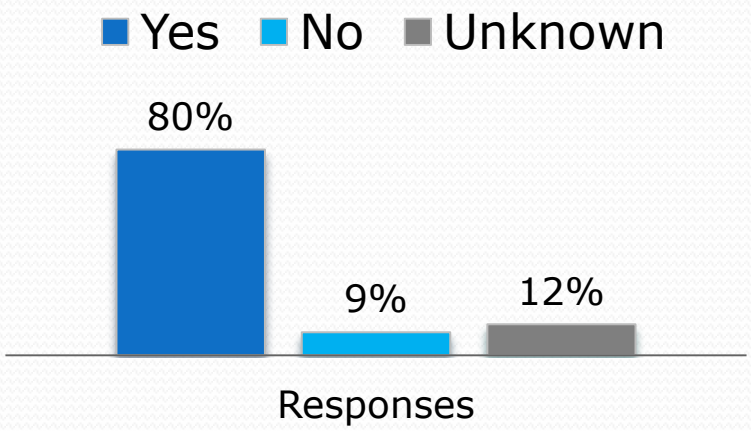


Water-Level Data Collection: Equipment, Training, Data Sharing

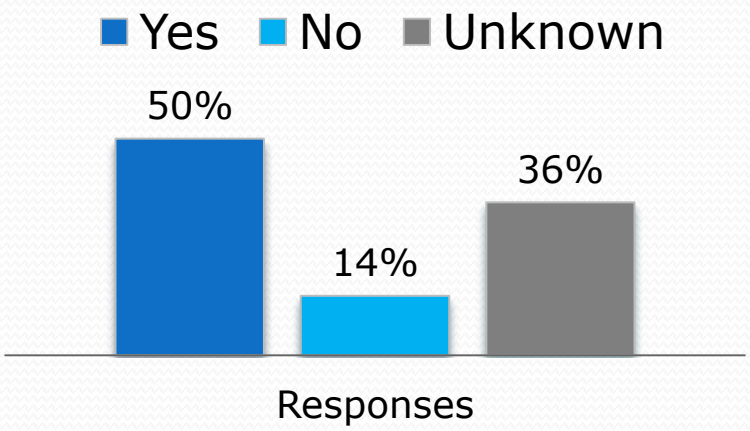
- 21% of respondents use a SCADA system to monitor real-time water-level data
- Standard operating procedures on equipment and data collection are most often developed "in-house"
- Most common methods of training field staff:
  - In-house
  - On-the-job
  - No training
- Most common water-level measurement equipment:
  - Electric sounder - Bi-wire electric tape
  - Pressure Transducer

Water-Level Data Collection: Equipment, Training, Data Sharing

80% of respondents collect water-level data from wells registered in ADWR's Wells55 database



50% of respondents collect water-level data from wells inventoried in ADWR's GWSI database



Comments/Concerns about Sharing Water-Level Data

In general, respondents commonly had concerns about:

- Erroneous or unreliable data being submitted
- Loss of confidentiality
- Possibility of data being used in regulatory actions against the entity providing it
- Who accesses and uses the data
- Protecting the security of public supply wells

Part 5: General Feedback

Regarding:

- Cooperative funding agreements for a statewide water-level data collection and data sharing program
- Overall water-level data collection activities

Respondents' Feedback

"I think the WL data collection activity should be a top priority of the ADWR. This data base is key to understanding water resources in the state. Use of WL data from other sources could potentially add important information to the data base. But a system of ranking data quality from other sources may be needed."

"I am a little concerned about the quality of the data that may be submitted to support ADWR activities. I fully support community support and volunteerism, but not at the expense of reliable data."

"It sounds like a great program to me and I would be willing to participate."

"Our city's budgets are also tight. We prefer to share data rather than contributing cash for it to be collected."

"I don't' have anything administratively to contribute to this effort, but I enthusiastically support the effort and commend the interest."

"I have a little concern for the potential of the addition of potentially erroneous data that can then be used to paint an inaccurate picture by anyone, government, private parties, etc..."

"I think that this is a great idea. There are a lot of water data collection occurring from water supply/irrigation wells, monitor wells etc. [To have] this information available on a basin wide scale would be very useful."

Next Steps

Review ADEQ's electronic data submittal system and any other available self-reporting web portals

Meet with stakeholders to discuss survey results, the development of an electronic data submittal portal, and the modification of ADWR's existing reporting formats

Identify costs and resources necessary for ADWR to develop an automated electronic hydrologic data submittal/sharing portal

Proceed with phased development and implementation of system

Thanks to All Individuals and Organizations That Participated in the Water-Level Data Survey!

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